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## NOTICE OF ALLOWANCE AND FEE(S) DUE

30752 7590 01/04/2010

BANNER & WITCOFF, LTD.  
ATTORNEYS FOR CLIENT NO. 000449, 001701  
1100 13th STREET, N.W.  
SUITE 1200  
WASHINGTON, DC 20005-4051

EXAMINER	
SAFAIPOUR, BOBBAK	
ART UNIT	PAPER NUMBER
2618	DATE MAILED: 01/04/2010

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,441	09/19/2004	David Famolare	004900.00025	5440

TITLE OF INVENTION: HARMONIZED ADAPTIVE ARRAYS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	04/05/2010

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

### HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER:** Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

**PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**  
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**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax** **(571) 273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

30752 7590 01/04/2010

**BANNER & WITCOFF, LTD.**  
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**1100 13th STREET, N.W.**  
**SUITE 1200**  
**WASHINGTON, DC 20005-4051**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,441	09/19/2004	David Famolare	004900.00025	5440

TITLE OF INVENTION: HARMONIZED ADAPTIVE ARRAYS

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1510	\$300	\$0	\$1810	04/05/2010

EXAMINER	ART UNIT	CLASS-SUBCLASS
SAFAIPOUR, BOBBAK	2618	455-562100

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).	2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
<input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.	1_____
<input type="checkbox"/> "Fee Address" indication (or "Fee Address" indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.	2_____
	3_____

## 3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY AND STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent):  Individual  Corporation or other private group entity  Government

4a. The following fee(s) are submitted:	4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)
<input type="checkbox"/> Issue Fee	<input type="checkbox"/> A check is enclosed.
<input type="checkbox"/> Publication Fee (No small entity discount permitted)	<input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.
<input type="checkbox"/> Advance Order - # of Copies _____	<input type="checkbox"/> The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)	<input type="checkbox"/> a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.	<input type="checkbox"/> b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).
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NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS; SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

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10/711,441	09/19/2004	David Famolare	004900.00025	5440
30752	7590	01/04/2010		
BANNER & WITCOFF, LTD. ATTORNEYS FOR CLIENT NO. 000449, 001701 1100 13th STREET, N.W. SUITE 1200 WASHINGTON, DC 20005-4051				EXAMINER SAFAIPOUR, BOBBAK
				ART UNIT 2618 DATE MAILED: 01/04/2010
				PAPER NUMBER

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 183 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 183 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/711,441	FAMOLARI, DAVID	
	<b>Examiner</b>	Art Unit	
	BOBBAK SAFAIPOUR	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTO-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- This communication is responsive to 11/15/09.
- The allowed claim(s) is/are \_\_\_\_\_.
- Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - All
  - Some\*
  - None
 of the:
  - Certified copies of the priority documents have been received.
  - Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
 \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

- A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
- CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - including changes required by the Notice of Draftperson's Patent Drawing Review ( PTO-948) attached 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
 Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
- DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- Notice of References Cited (PTO-892)
- Notice of Draftperson's Patent Drawing Review (PTO-948)
- Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_.
- Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
- Notice of Informal Patent Application
- Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_.
- Examiner's Amendment/Comment
- Examiner's Statement of Reasons for Allowance
- Other \_\_\_\_\_.

/Bobbak Safaipour/  
Examiner, Art Unit 2618

**DETAILED ACTION**

*Reasons for Allowance*

**Claims 1-8, 12-20, 24-26** are allowed.

Consider **claim 1**, the best prior art of record found during the examination of the present application, **Park et al (US 7,043,272 B2)**, fails to specifically disclose, teach, or suggest a method for adjusting beams in a wireless communication system comprising the steps of: forming a basis beam; listening for a transmission by a mobile station, wherein said transmission includes a packet including a header; and forming a select beam to cover said mobile station, said select beam formed responsive to said header, wherein an angle of arrival of said mobile station is determined from header information contained in said header, and wherein said forming step determines if said mobile station is covered by comparing said angle of arrival of said mobile station with angles covered by said basis beam.

**Claims 2-3** are allowable because it is dependent upon independent claim 1.

Consider **claim 4**, the best prior art of record found during the examination of the present application, **Park et al (US 7,043,272 B2)**, fails to specifically disclose, teach, or suggest a method comprising the steps of: determining when an entry for a station had been last updated in a table in a wireless access point, said wireless access point configured to form a basis beam to cover said station at least when said station is idle and configured to form a select beam to cover said station when said station is active; determining if a time for said last update for said station is greater than a threshold; listening for a transmission by said station; updating said entry for

said station responsive to every transmission by said station; and updating said basis beam based on said updated entry for said station.

**Claims 5-7** are allowable because it is dependent upon independent claim 4.

Consider **claim 8**, the best prior art of record found during the examination of the present application, **Park et al (US 7,043,272 B2)**, fails to specifically disclose, teach, or suggest a method for adjusting beams comprising the steps of: determining if a station is covered by a basis beam; adjusting said basis beam to cover said station responsive to determining said station is not covered by said basis beam, wherein an angle of arrival of said station is determined from header information contained in a packet received from said station and wherein said determining step determines if said station is covered by comparing said angle of arrival of said station with angles covered by said basis beam.

Consider **claim 12**, the best prior art of record found during the examination of the present application, **Park et al (US 7,043,272 B2)**, fails to specifically disclose, teach, or suggest a method for adjusting beams comprising the steps of: decoding at an access point a first part of a transmitted packet to determine the angle of arrival of said transmitted packet as transmitted from a mobile station; adjusting a basis beam to ensure coverage of said mobile station based on said angle of arrival; decoding a second part of the transmitted packet as received via a select beam; and adjusting the select beam based on information in the second part of the transmitted packet, wherein said decoding steps and said adjusting steps are responsive to each transmitted packet received from said mobile station at said access point.

Consider **claim 13**, the best prior art of record found during the examination of the present application, **Park et al (US 7,043,272 B2)**, fails to specifically disclose, teach, or suggest a system for adjusting beams in a wireless communication system comprising: means for forming a basis beam; means for listening for a transmission by a mobile station, said transmission including at least one packet including at least one header; and means for forming a select beam to cover said mobile station based on said at least one header, wherein an angle of arrival of said mobile station is determined from header information contained in said at least one header, and wherein said means for forming a basis beam includes determining if said mobile station is covered by comparing said angle of arrival of said mobile station with angles covered by said basis beam.

**Claims 14-15** are allowable because it is dependent upon independent claim 13.

Consider **claim 16**, the best prior art of record found during the examination of the present application, **Park et al (US 7,043,272 B2)**, fails to specifically disclose, teach, or suggest a system comprising: means for determining when an entry for a station had been last updated in a table in a wireless access point, said wireless access point configured to form a basis beam to cover said station at least when said station is idle and configured to form a select beam to cover said station when said station is active; means for determining if a time for said last update for said station is greater than a threshold; means for receiving a transmission by said station; means for updating said entry for said station responsive to receiving every transmission by said station; and means for updating said basis beam based on said updated entry for said station.

**Claims 17-19** are allowable because it is dependent upon independent claim 16.

Consider **claim 20**, the best prior art of record found during the examination of the present application, **Park et al (US 7,043,272 B2)**, fails to specifically disclose, teach, or suggest a system for adjusting beams comprising: means for determining if a station is covered by a basis beam; and means for adjusting said basis beam to cover said station, wherein an angle of arrival of said station is determined from header information contained in a packet received from said station and wherein said means for determining determines if said station is covered by comparing said angle of arrival of said station with angles covered by said basis beam.

Consider **claim 24**, the best prior art of record found during the examination of the present application, **Park et al (US 7,043,272 B2)**, fails to specifically disclose, teach, or suggest a system for adjusting beams comprising: a first means for decoding at an access point a first part of a transmitted packet to determine the angle of arrival of said transmitted packet as transmitted from a mobile station; a first means for adjusting a basis beam to ensure coverage of said mobile station based on said angle of arrival; a second means for decoding a second part of the transmitted packet as received via a select beam; and a second means for adjusting the select beam based on information in the second part of the transmitted packet, wherein said first decoding means, said second decoding means, and said first adjusting means, and said adjusting means are responsive to each transmitted packet received from said mobile station at said access point.

Consider **claim 25**, the best prior art of record found during the examination of the present application, **Park et al (US 7,043,272 B2)**, fails to specifically disclose, teach, or suggest a an access point comprising: an antenna array configured to output a select beam to cover an active mobile station and a basis beam to cover at least an idle mobile station: one or more processors that receive packets from said antenna, said packets generated by mobile stations, said one or more processors configured to decode a first portion of said packets, determine an angle the angle of arrival of said packets based on information regarding said packets from said antenna array; and output antenna array weights to said antenna array to steer said select beam to cover an active mobile station of said mobile stations.

**Claims 26** is allowable because it is dependent upon independent claim 25.

***Conclusion***

Any response to this Office Action should be **faxed to (571) 273-8300 or mailed to:**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**Hand-delivered responses** should be brought to

Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the

Examiner should be directed to Bobbak Safaipour whose telephone number is (571) 270-1092.

The Examiner can normally be reached on Monday-Friday from 9:00am to 5:00pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Matthew Anderson can be reached on (571) 272-4177. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free) or 703-305-3028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist/customer service whose telephone number is (571) 272-2600.

/Bobbak Safaipour/  
Examiner, Art Unit 2618

/Yuchen Pan/  
Primary Examiner, Art Unit 2618

December 30, 2009